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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,661	05/16/2001	Takayuki Ogawa	106145-00018	1390

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EXAMINER

LUM VANNUCCI, LEE SIN YEE

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/855,661

Applicant(s)

OGAWA ET AL.

Examiner

Ms. Lee S. Lum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,8,9 and 15 is/are rejected.
- 7) ☒ Claim(s) 5,6,10,11,13,14 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. An Amendment was filed 1/15/04 in which Claim 17 was also added.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 3, 4, 8, 9 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ap 6448535 in view of Hamano et al 4558992, and Kutowy 4395130.

Ap discloses a cooling system for fuel-cell powered vehicle V, the system comprising  
Primary circulation passage 30 connected to the fuel cell (col 3, lines 32-33), for a  
primary coolant (col 3, lines 36-37) to be circulated thru primary pump 38,

Secondary circulation passage 32 for a secondary coolant (col 3, lines 40-41) thru  
secondary pump 66,

Primary heat exchanger 34 for heat exchange between the primary and secondary  
coolants, and including

First and second flow passages 30/32 (col 3, lines 32-47),

The first flow passage being located in the primary circ passage,

The second flow passage being located in the second flow passage of the  
primary heat exchanger (col 3, lines 44-47),

and,

Secondary heat exchanger 52 for heat exchange between the secondary coolant and  
outside air.

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The reference does not show the pumps as driven by shafts on opposite ends of a single drive motor, but Hamano shows this feature with single motor 12 driving low-pressure pump 16, and high-pressure pump 18, via respective shafts 14a/b, all arranged co-linearly. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include a single drive motor for the pumps, and arranged in a co-linear manner, as shown in Hamano, to simplify the design, manufacture, and maintenance of the fuel cell structure.

Neither Ap nor Hamano disclose different flow rates for the pumps, while Kutowy shows this feature in col 5, first paragraph, with emphasis on "the two or more pumping elements deliver fluids at prescribed rates...according to need", lines 4-5.

In this manner, then, it would have been obvious to one with ordinary skill in the art at the time the invention was made to include this arrangement, as shown in Kutowy, to construct the multiple pumps to achieve the desired results/application, these results including different flow rates, pressures, etc., i.e., factors well-known in the art. Kutowy is merely referenced to emphasize that different flow rates and pressures are among various design considerations that are varied according to the specific application.

### 3. ALLOWABLE SUBJECT MATTER

- a. **Claims 5, 6, 10, 11, 13 and 14 are allowable.**
- b. **Claim 17** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not disclose a cooling system for a fuel cell powered vehicle that includes the typical components listed, and,

a sub-circulation passage for circulating the secondary coolant through the secondary pump, second heat exchanger, and heat generating source.

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4. The prior art made of record, and not relied upon, is considered pertinent to the Applicant's disclosure, illustrating pumping configurations: Beck et al 6454543, Cote 5785504, Permar 5482441.



5. RESPONSE TO REMARKS:

In consideration of Applicant's arguments, Examiner has provided slightly modified rejections with Kutowy teaching variation of flow rates in a multiple pump system. Applicant is asked to note allowable subject matter.

6. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, 9 am-6 pm, M-F. Our fax number is (703) 872-9306. Any inquiry of a general nature, or relating to the status of this application/proceeding should be directed to Customer Assistance at (703) 306-5771.

Ms. Lee S. Lum  
Examiner  
4/1/04



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